

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>B65D 33/16, 33/18</b>		A1	(11) International Publication Number: <b>WO 00/58166</b> (43) International Publication Date: 5 October 2000 (05.10.00)
<p>(21) International Application Number: <b>PCT/DK00/00155</b></p> <p>(22) International Filing Date: 29 March 2000 (29.03.00)</p> <p>(30) Priority Data: PA 1999 00425 29 March 1999 (29.03.99) DK</p> <p>(71) Applicant (<i>for all designated States except US</i>): DANISCO A/S [DK/DK]; Langebrogade 1, P.O. Box 17, DK-1001 Copenhagen K (DK).</p> <p>(72) Inventor; and</p> <p>(75) Inventor/Applicant (<i>for US only</i>): SCHULZ, Werner [DK/DK]; Plantagen 87, DK-8700 Horsens (DK).</p> <p>(74) Agent: CHAS. HUDE A/S; H.C. Andersens Boulevard 33, DK-1780 Copenhagen V (DK).</p>		<p>(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
<p>(54) Title: STAND-UP BAG FOR FLOWABLE OR POURABLE PRODUCTS</p> <p>(57) Abstract</p> <p>A stand-up bag of heat-sealable plastic film comprising two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6), an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1, 2) along transverse bottom seams (7) and along bottom side seams, and an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams. At least one of the transverse connections between the top wall (3) and the side walls is a peelable connection (12) provided between an upper edge portion (16) of the top wall (83) and an upper edge portion (15) of the adjacent side wall (2).</p> <img alt="Technical drawing of a stand-up bag for flowable or pourable products. The diagram shows a three-dimensional perspective view of the bag. It features two vertical side walls (1, 2) joined at the top and bottom by transverse connections (11, 12). The top wall (3) is folded inward at its base and sealed to the side walls (1, 2) along transverse top connections (11, 12). The bottom wall (4) is also folded inward and sealed to the side walls (1, 2) along transverse bottom seams (7). A central vertical seam (17) runs through the bag. Various parts are labeled with numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1			

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

Title: Stand-up bag for flowable or pourable products.

Technical Field

The invention relates to a stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:

- 5 - two opposing side walls sealed together along lateral edges thereof by means of side seams;
- an inwardly folded bottom wall extending between the lower portions of the side walls and sealed to the respective side walls along transverse bottom seams and along bottom side seams; and
- 10 - an inwardly folded top wall extending between the upper portions of the side walls and connected to the respective side walls along transverse top connections and sealed to the respective side walls along top seams.

Background Art

Stand-up bags of this type are known inter alia from US-A-3,935,993 and 15 DE-A1-2553854. Due their excellent standing properties and stability the bags have been used for a wide range of products, in particular for liquid, paste-like, powdery and granular products. It is however considered a drawback of the known stand-up bags that they are difficult to open why a pair of scissors or a knife is often needed or - as for instance known from WO 93/16928 and EP-A2-0.380.110 - they are 20 provided with special discharging arrangements for easy removal of the product which makes the bag more expensive.

Brief Description of the Invention

The object of the invention is to provide a stand-up bag of the above type which is easy to open toollessly and which is simple and inexpensive to manufacture.

- 5    The stand-up bag according to the invention is characterised in that at least one of the transverse connections between the top wall and the side walls is a peelable connection provided between an upper edge portion of the top wall and an upper edge portion of the adjacent side wall. The bag is thereby easily opened by gripping the top wall and the side wall connected by means of the peelable connection and
- 10    pulling the two walls apart such that the peelable connection is broken.

According to the invention the upper edge portions of the top wall and the side wall may extend beyond the transverse peelable connection to form gripping members to be gripped when the peelable connection is to be broken. In addition to facilitating the opening of the bag, this embodiment of the invention is advantageous in that the

- 15    portion of the top wall extending beyond the peelable connection may serve as a form of spout after the bag has been opened.

- Furthermore according to the invention the peelable connection may comprise a film strip arranged between the upper edge portions of the top wall and the side walls, said film strip being firmly (non-peelably) heat-sealed to one of the edge portions,
- 20    preferably to the edge portion of the top wall, the strip having a first surface of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall, and heat-sealed peelably to the second edge portion, preferably the edge portion of the side wall, the strip having a second surface of a sealing medium heat-sealed peelably to the sealing medium of the adjacent bag wall.
  - 25    When the inner sealing medium of the bag walls is substantially made from polyethylene (PE), the first outer sealing medium layer of the film strip may be made

from substantially polyethylene (PE) and the second outer sealing medium layer thereof may comprise a mixture of polyethylene (PE) and polybutylene. As a result a firm seal between the polyethylene layer of the film strip and the inner polyethylene layer of the adjacent bag wall is obtained, while a peelable seal is obtained between 5 the second outer sealing medium layer (which is a mixture of PE and polybutylene) of the film strip and the polyethylene of the adjacent bag wall, the peel strength of the said peelable seal being easy to control.

Moreover according to the invention the peelable connection may comprise a film strip arranged between the upper edges of the top wall and the side wall and having 10 a first and a second outer sealing medium layer with which it is firmly (non-peelably) heat-sealed to the respective edge portions and further having an intermediate layer peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer and the said sealing medium layer. The peelable connection is thus opened by tearing the weak 15 sealing medium layer on both sides of the sealing seam and by a delamination between the weak sealing medium layer and the intermediate layer.

In the above embodiment of the invention the intermediate layer may advantageously be formed of a pressure-sensitive adhesive, eg a self-sealing adhesive of the hot-melt type. As described above, the intermediate layer is exposed when the peelable 20 connection of the bag is opened. As the intermediate layer is made from a self-sealing adhesive, the layer adheres to the opposing side wall after the initial opening of the bag to enable reclosure of the bag.

Furthermore according to the invention the peelable connection may comprise a peel lacquer strip of the hot-melt type which is applied to at least one of the mutually 25 facing surfaces of the top wall and the upper edge portions of the side wall. Such a hot-melt strip is easy to apply and provides the peelable connections with a peel strength which is easy to control.

Moreover according to the invention above the peelable connection the upper edge portion of the top wall may be folded down to abut the outer face of the adjacent side wall. The free edge of the folded-down edge portion is preferably positioned above the peelable connection between the top wall and the side wall. The folded-down  
5 edge portion forms a flap to allow reclosure of the bag after the peelable connection has been opened.

According to the invention above the peelable connection both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall may be folded down onto the adjacent side wall. The folded-down edge portions thereby form a flap  
10 to allow reclosure of the bag after the peelable connection has been opened.

In the above embodiments, wherein the upper edge portion of the top wall or both the upper edge portion of the top wall and the upper edge portion of the adjacent side wall are folded down onto the outer face of the adjacent side wall, the fold may advantageously be provided in the same level as the opposite edge of the top wall and  
15 the upper edge of the opposite side wall. As a result the bag is provided with excellent stackability.

Finally according to the invention in the area of the peelable connection the upper edge portion of either the side wall or the top wall may be folded down for abutment inner face to inner face, and the wall with the folded-down edge portion may have  
20 an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer of the other wall. This embodiment of the invention makes it possible to manufacture the bag from a single film web without any further steps.

In the above embodiment of the invention the outer sealing medium layer of the wall with the folded-down edge may advantageously be a copolymer comprising  
25 polyethylene and polypropylene when the inner sealing medium layer of the bag walls is made from substantially polyethylene.

The peel strength of the peelable connections may range from 100 to 800 g/20 mm, preferably from 200 to 600 g/20 mm, and most preferably from 300 to 500 g/20 mm.

Brief Description of the Drawings

- 5 The invention is explained in detail below with reference to the drawings, in which

Fig. 1 is an isometric view of a stand-up bag according to the invention,

Fig. 2 is a side view of a collapsed stand-up bag according to the invention,

- Fig. 3 is a sectional view along the line III-III in Fig. 2, the walls of the stand-up bag for purely illustrative reasons being separated from each other and the seals 10 therebetween thus being partially omitted or shown diagrammatically, Fig. 3 further illustrating a first embodiment of a peelable connection between a side wall and a top wall of the bag,

Fig. 4 is a partial sectional view corresponding to Fig. 3 to illustrate a second embodiment of a peelable connection,

- 15 Fig. 5 is a partial sectional view corresponding to Fig. 3 to illustrate a third embodiment of the peelable connection,

Fig. 6 is a partial sectional view corresponding to Fig. 3 to illustrate a fourth embodiment of a peelable connection,

- 20 Fig. 7 is a partial sectional view corresponding to Fig. 3 through a first modification of the embodiment shown in Fig. 5, and

Fig. 8 is a partial sectional view corresponding to Fig. 3 of a second modification of the embodiment shown in Fig. 5.

Best Mode for Carrying Out the Invention

The stand-up bag according to the invention shown in Figs. 1 to 3 comprises two  
5 opposed side walls 1,2, a top wall 3 and a bottom wall 4 arranged opposite one another. The side walls 1,2 are sealed together by means of side seams 5,6 extending along two opposed side edges. The bottom wall 4 is folded inwardly along a bottom wall fold 13 and sealed to the side walls 1,2 along two opposed transverse seals 7,8. Correspondingly the top wall 3 is folded inwardly along a top wall fold 14  
10 and sealed to the side wall 1 along an upper transverse seal 11 and connected to the side wall 2 by means of a transverse peelable connection 12. The transverse peelable connection 12 is arranged opposite the transverse seal 11 and is explained in detail below. Furthermore both the folded top wall 3 and the folded bottom wall 4 is sealed onto itself and to the side walls along the side seams 5,6. As illustrated the bag may  
15 further have oblique seams 9,10, each extending from the fold area of the bottom wall 4 in the respective side seam 5,6 to the adjacent transverse seams 7,8. Each of the oblique seams 9,10 connects a side wall 1,2 to the adjacent area of the bottom wall 4.

- As shown in Figs 1 to 3 an upper edge portion 15 of the side wall 2 extends slightly  
20 beyond the transverse peelable connection 12. Correspondingly an upper edge portion 16 of the top wall 3 extends slightly beyond the transverse peelable connection 12 between the top wall 13 and the side wall 2, said edge portions 15,16 forming gripping members to be gripped when the peelable connection 12 is to be broken for opening of the bag.  
25 As shown in Figs. 1 to 3 the peelable connection comprises a film strip 17 between the upper edge portions 16,15 of the top wall 3 and the side wall 2, said film strip

being sealed to the edge portion of the top wall 3 by means of a strong seal and sealed to the edge portion 15 of the side wall 2 by means of a peelable seal. This feature is obtained by the strip 17 comprising a first surface 18 of a sealing medium facing the top wall 3, said sealing medium layer corresponding substantially to the  
5 sealing medium layer forming the inner surface 19 of the top wall 3 and further comprising a second surface 20 of a sealing medium layer facing the side wall 2, said sealing medium sealing peelably by heat sealing to the sealing medium layer forming the inner surface 21 of the side wall 2. When the inner surface 19 of the top wall 3 and the inner surface 21 of the side wall 2 is made from polyethylene, the first  
10 surface 18 of the strip 17 may also be made from polyethylene, while the second surface 20 thereof may be formed of a mixture of polyethylene and polybutylene. When tearing open the peelable connection 12, the strip 17 remains on the top wall 3 and does not impede the discharge of the product in the bag, the discharge taking place through the upper edge portion 15 of the side wall 2, said portion serving as  
15 a form of spout.

Even though Fig. 3 illustrates that the side walls 1,2 and the bottom and top walls 4,3 are formed of separate films sealed together, it should be understood that the bag may be formed of a single film web as suggested by means of the dotted lines 22 to 24. A plurality of different plastic laminates may be used for manufacturing the bag  
20 according to the invention. Examples hereof include:

When manufacturing the bag from a single film web it is advantageous to use a laminate having both an outer and an inner sealing medium layer such that the bottom wall is sealed onto itself along side seams 5,6 in order obtain the intended good standing ability. This may be obtained by means of the laminate coex OPP/PETP  
25 (polyester)/PE, in which the PE-layer is on the inner side seen in relation to the finished bag and coex OPP denotes a co-extruded oriented polypropylene film provided with a thin sealing medium layer on each side comprising a copolymer of PP and PE. In order to obtain enhanced barrier properties a barrier layer, eg an

aluminium film, may be provided between the PETP layer and the PE layer or the coex OPP film. Furthermore the PETP layer may be replaced by an oriented polyamide (OPA).

- To further increase the standing properties and stability of the bag, a stronger or
- 5 more rigid film may be used for the side walls than for the bottom and top walls. The bag is then made from four sheet webs. The same laminates as mentioned above may be used, thicker laminates being used for the side walls than for the bottom and top walls. However it is also possible to use a PETP/PE laminate (or PETP/PP laminate) for the side walls, in which PE facing inwards seen in relation to the bag, and a
- 10 PE/PETP/PE laminate (PP/PETP/PP laminate) or the above coex OPP/PETP/ PE laminate for the bottom and top walls. Also in the instance PETP may be replaced by OPA and the laminates may comprise a barrier layer for instance in form of an aluminium film.

- It should further be noted that the bag may be formed from a single film web and
- 15 from four separate film webs on a vertical form, fill and seal machine. The same applies to the manufacture of pre-fabricated bags, ie ready-made bags apart from one side seam.

- Fig. 4 illustrates a second embodiment of a peelable connection 32 between the upper edge portion 15 of the side wall 2 and the upper edge portion 16 of the top wall 3.
- 20 This peelable connection 32 comprises a film strip 37 arranged between the two edge portions 15 and 16 and having a first surface layer 28 and a second surface layer 29 of a sealing medium corresponding to the sealing medium forming the inner surface 19 of the top wall 3 and the sealing medium layer forming the inner surface 20 of the side wall 2, said film strip thus being heat-sealed non-peelably to the said surfaces.
- 25 An intermediate layer 30 is provided between the two surface layers 28 and 29 and is connected peelably to the second surface layer 29 and preferably connected more firmly to the first surface layer 28. Further the tear resistance of the second surface

layer 29 is weaker than the peel strength between said layer and the intermediate layer 30. When the edge portions 15,16 are pulled to open the peelable connection 32, the layer 29 is torn off along the edges of the transverse seam 31 corresponding to the edges of the sealing tool used. Furthermore a delamination takes place between 5 the layer 29 and the intermediate layer 30 in the portion corresponding to the sealing zone. The use of an intermediate layer 30 of a pressure-sensitive adhesive allow for reclosure of the peelable connection 32 and thus of the bag after the initial opening thereof by pressing the exposed portion of the intermediate layer 30 against the corresponding portion of the edge portion 15 of the side wall 2.

10

Fig. 5 illustrates a third embodiment of a peelable connection 42. This peelable connection comprises a hot-melt strip 47 applied to the inner surface 19 of the upper edge portion 16 of the top wall 3. By activating the hot-melt by means of sealing tools, the peelable connection 42 of a width corresponding to the width of the sealing 15 tools is provided between the edge portion 15 of the side wall 2 and the edge portion 16 of the top wall 3 in the transverse sealing zone 41.

Fig. 6 illustrates a fourth embodiment of a peelable connection 52 between the upper edge portion 15 of the side wall and the upper edge portion 36 of the top wall 3. The upper edge portion 36 of the top wall is folded down for abutment inner face to inner 20 face such that the outer surface 38 of the top wall 3 faces the inner surface 20 of the side wall 3. As the outer surface 38 of the top wall 3 is formed of a sealing medium sealing peelably to the inner surface 20 of the side wall, the peelable connection 52 is provided in a transverse sealing zone 51 in a width corresponding to the width of the sealing tool used to seal the upper edge portion 36 of the top wall 3 to the upper 25 edge portion 15 of the side wall 2. In this embodiment of the peelable connection it is advantageous to use the above coex OPP/PETP/PE laminate for the top wall 3 and the side wall 2.

In the embodiments described above a plastic zipper comprising matable, reclosable

zipper elements may be arranged above the peelable connection 12, 32, 42, 52, said elements carried by the opposed surfaces of the upper edge portion of the side wall 2 and the edge portion of the top wall 3, respectively in order to provide the bag with reclosability. In a manner known per se the zipper elements may be formed integrally  
5 with the respective upper edge portion or be arranged on zipper element strips sealed to the respective upper edge portions.

Fig. 7 illustrates a first modification of the embodiment described with reference to Fig. 5. In this modification the upper end portion of the top wall 3 is provided with an extension 53 which is folded down (at reference numeral 59) onto the outer face  
10 of the upper edge portion 15 of the side wall 2. The free edge 54 of extension 53 is situated above the seam 41 providing the peelable connection 42 between the side wall 2 and the top wall 3. The extension 53 thus forms a flap on the bag allowing for reclosability.

The flap or extension 53 is further sealed to the outer face of the side wall 2 in the  
15 area of the side seams 5,6 of the side wall. By suitably selecting the material forming the inner surface of the top wall 3 and the outer surface of the side wall, the flap is fusion-sealed to the side wall 2 in the area of the side seams 5,6, whereby optimum reclosability is obtained.

It should be noted that in the modification shown in Fig. 7 also the embodiments  
20 described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

Moreover, it should be noted that the fold 59 also may be positioned at the same level as the opposed free edge of the top wall and the opposed side wall, as described below in connection with a further modification.

25 Fig. 8 illustrates a second modification of the embodiment described with reference

to Fig. 5. In this modification the upper edge portion 60 of the top wall 3 and the upper edge portion 58 of the side wall 2 are jointly folded down onto the side wall at reference numeral 55. The fold 55 is substantially at the same level as the opposed edge 61 of the top wall 3 and the upper edge 56 of the opposed side wall 1. By 5 arranging the fold 55, the opposed edge 61 of the top wall and the upper edge 56 of the opposed side wall 1 at the same level a bag with good stackability is provided. The lower free edges of the upper folded-down edge portions 58, 60 extend beyond the peelable connection 42 provided between the top wall 3 and the side wall 2 by the sealing zone 41.

- 10 It should furthermore be noted that the hot-melt strip 47' extends onto the folded-down edge portion 60 of the top wall 3. Thus, at the same time as the peelable connection 42 is provided in the sealing zone 41, an additional peelable connection is provided between the folded-down edge portions 58, 60 in a corresponding sealing zone 57.
- 15 It should be noted that also in the modification shown in Fig. 8 the embodiments described with reference to Figs. 1 to 4 of the reclosable connections 12,32 may be used instead of the embodiment 42 described with reference to Fig. 5.

Claims

1. Stand-up bag of a heat-sealable or weldable plastic film for containing in particular flowable or pourable products and comprising:
  - 5 - two opposing side walls (1, 2) sealed together along lateral edges thereof by means of side seams (5, 6);
    - an inwardly folded bottom wall (4) extending between the lower portions of the side walls (1, 2) and sealed to the respective side walls (1,2) along transverse bottom seams (7, 8) and along bottom side seams; and
  - 10 - an inwardly folded top wall (3) extending between the upper portions of the side walls (1, 2) and connected to the respective side walls (1,2) along transverse top connections (11, 12) and sealed to the respective side walls (1, 2) along top side seams,

characterised in that at least one of the transverse connections between the top wall (3) and the side walls is a peelable connection (12, 32, 42, 52) provided between an upper edge portion (16, 36) of the top wall (3) and an upper edge portion (15) of the adjacent side wall (2).

- 2. Stand-up bag according to claim 1, characterised in that the upper edge portions (16, 36; 15) of the top wall (3) and of the side walls (2) extends beyond the transverse peelable connection (12, 32, 42, 52) to form gripping members.
- 3. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (15) comprises a film strip (17) arranged between the upper edge portions (16,15) of the top wall (3) and the side wall (2), said film strip being firmly

(non-peelably) heat-sealed to one of the edge portions, preferably to the edge portion of the top wall (3), the strip (17) having a first surface (18) of a sealing medium corresponding substantially to the sealing medium of the adjacent bag wall (3), and heat-sealed peelably to the second edge portion, preferably the edge portion (15) of 5 the side wall (2), the strip (17) having a second surface (20) of a sealing medium heat-sealing peelably to the sealing medium of the adjacent bag wall.

4. Stand-up bag according to claim 3, and wherein the inner sealing medium of the bag walls is made substantially from polyethylene (PE), characterised in that the first outer sealing medium layer (18) of the film strip (17) comprises a 10 mixture of PE and polybutylene.

5. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (32) comprises a film strip (37) arranged between the upper edges (16,15) of the top wall (3) and the side wall (2) and having a first and a second outer sealing medium layer (28,29) with which it is firmly (non-peelably) heat-sealed 15 to the respective edge portions (16,15) and further having an intermediate layer (30) peelably connected to at least one of the outer sealing medium layers having a tear resistance weaker than the peel strength between the intermediate layer (30) and the said sealing medium layer.

6. Stand-up bag according to claim 5, characterised in that the 20 intermediate layer (30) is a pressure-sensitive adhesive.

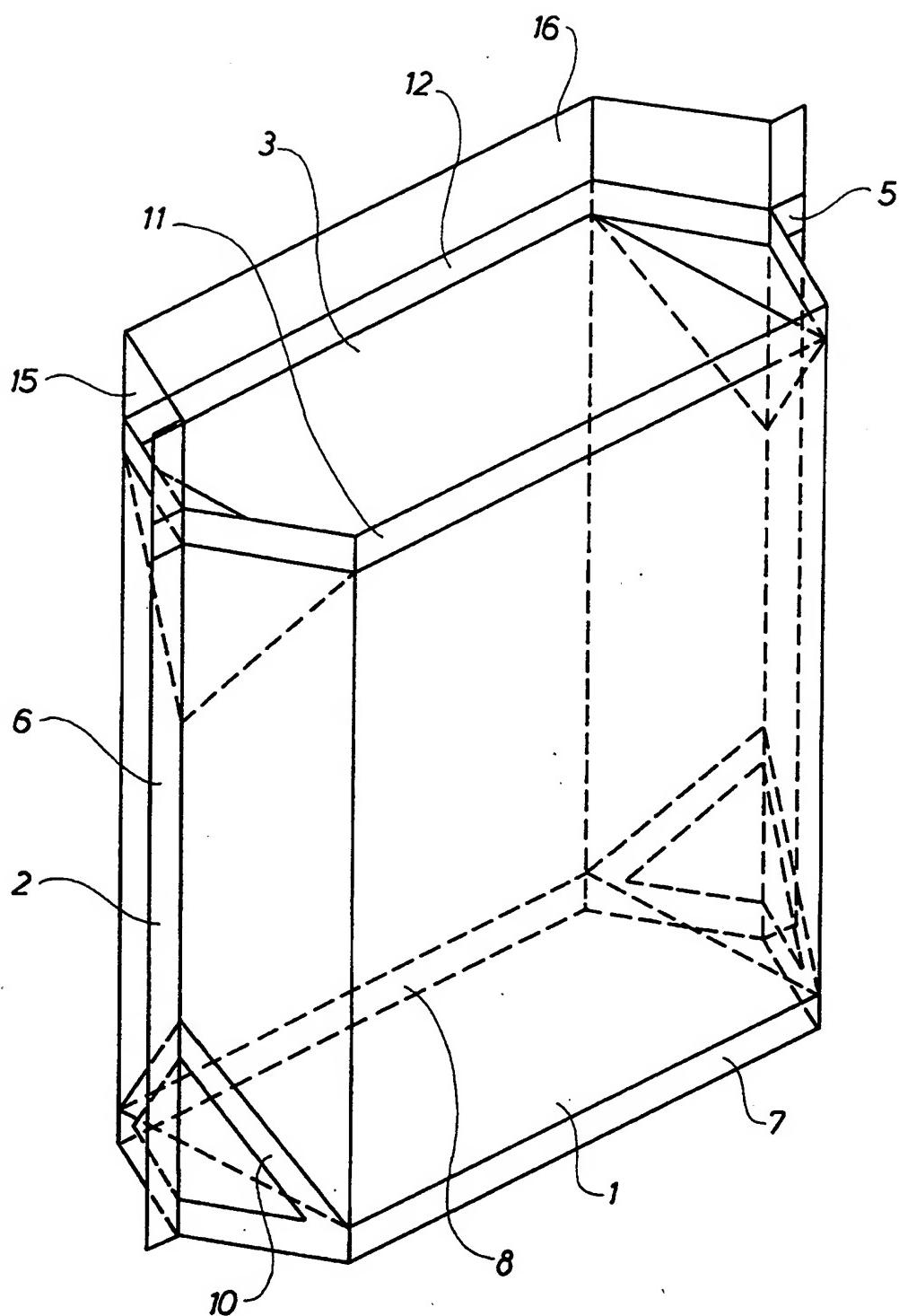
7. Stand-up bag according to claim 1 or 2, characterised in that the peelable connection (42) comprises a peelable strip of the hot-melt type applied to at least one of the two mutually facing surfaces (19,20) of the upper edge portions (16,15) of the top wall (3) and the side wall (2).

25 8. Stand-up bag according to one or more of the preceding claims,

characterised in that above the peelable connection (42) the upper edge portion (53) of the top wall is folded down to abut the outer face of the adjacent side wall (2).

9. Stand-up bag according to one or more of the claims 1 to 8,  
5 characterised in that above the peelable connection (42) both the upper edge portions (60) of the top wall (3) and the upper edge portions (58) of the adjacent side wall (2) are folded down onto the adjacent side wall (2).

10. Stand-up bag according to claim 1 or 2, characterised in that in the area of the peelable connection (52) the upper edge portion (36) of the side wall or  
10 top wall (3) is folded down for abutment inner face to inner face and that the wall (3) with the folded-down edge portion (36) has an outer sealing medium layer heat-sealing peelably to the inner sealing medium layer (20) of the other wall (2).



*Fig. 1*

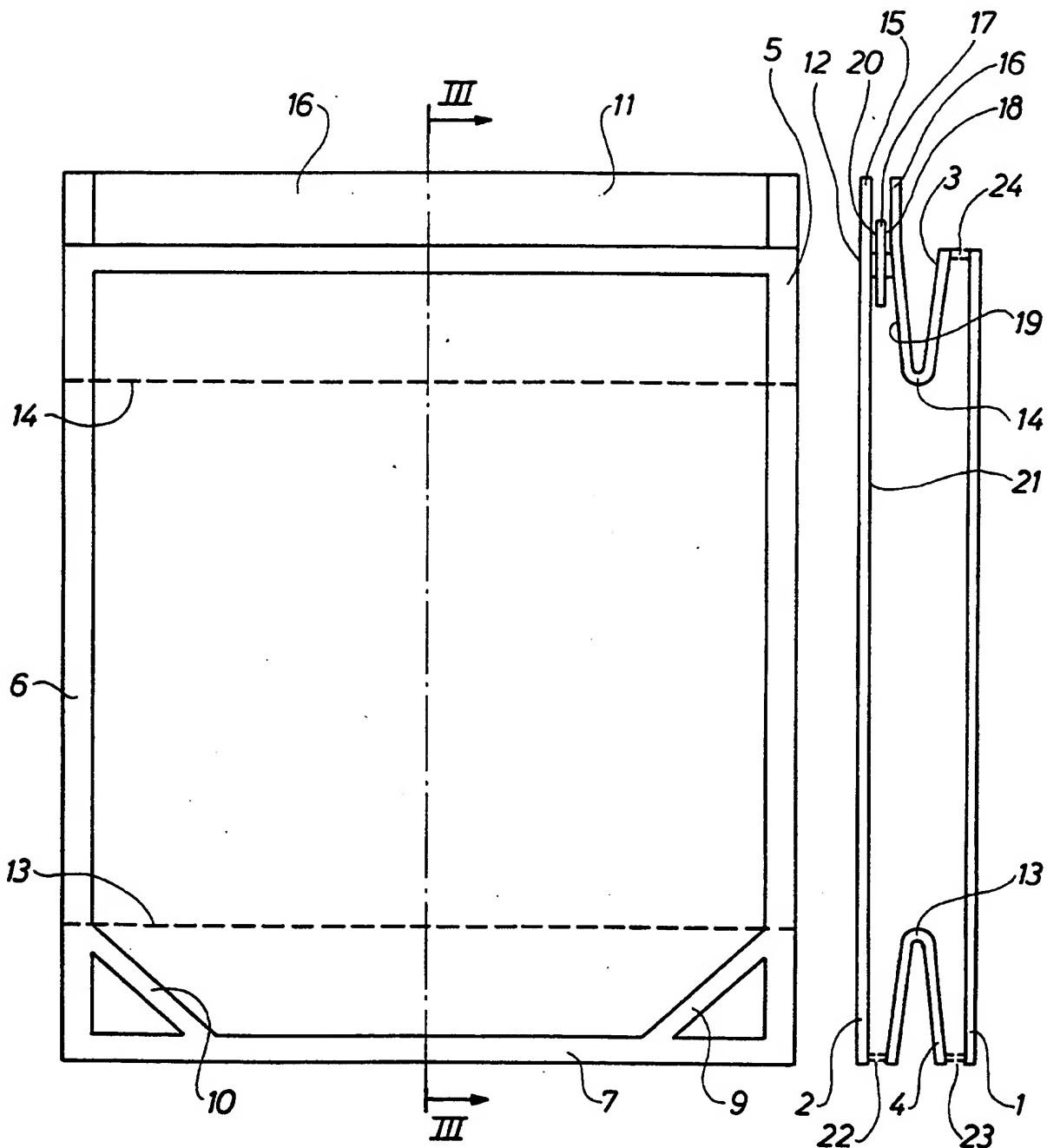
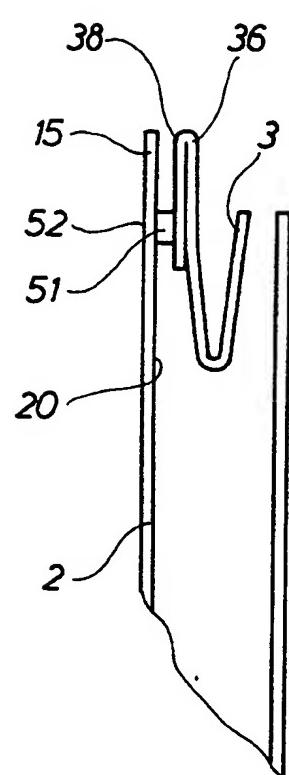
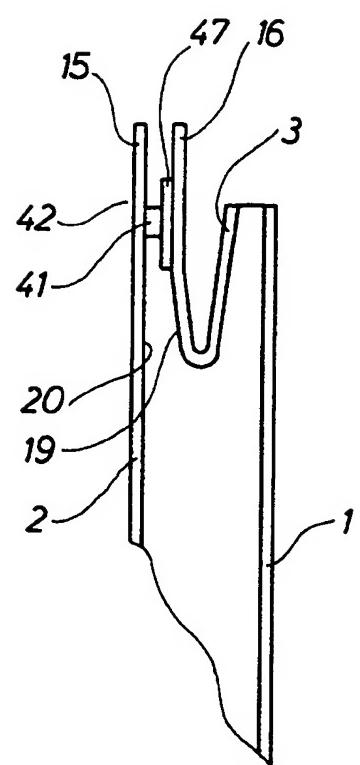
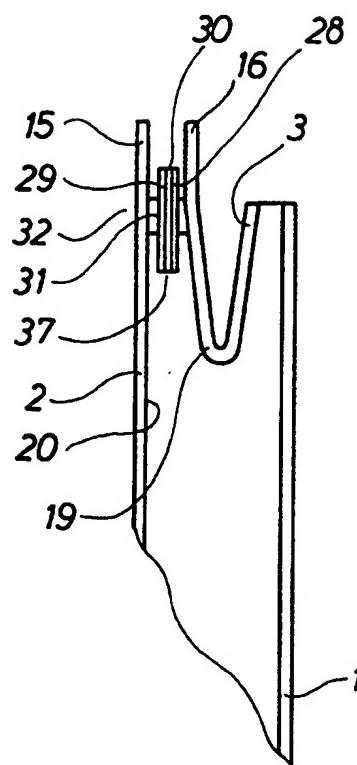


Fig. 2

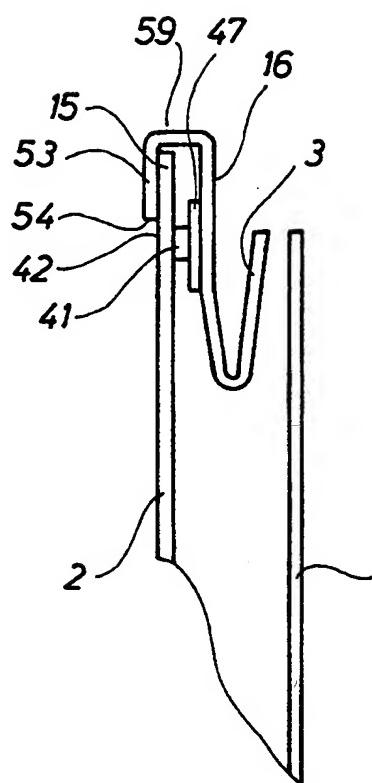
Fig. 3



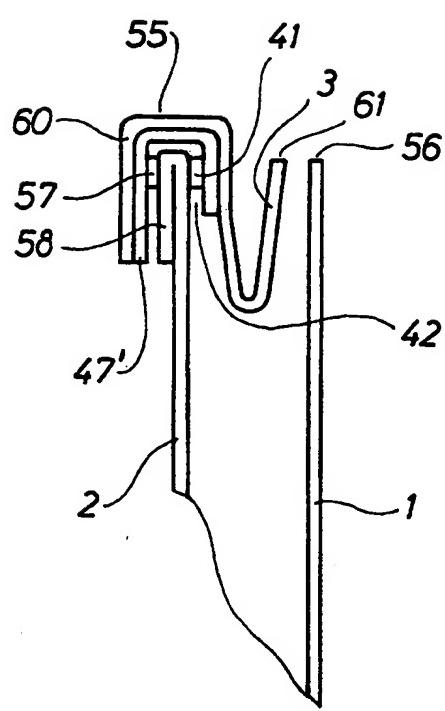
*Fig. 4*

*Fig. 5*

*Fig. 6*



*Fig. 7*



*Fig. 8*

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 00/00155

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC7: B65D 33/16, B65D 33/18**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

**IPC7: B65D**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9813271 A1 (TENNECO PACKAGING INC.), 2 April 1998 (02.04.98), abstract  --	1-10
A	US 5160308 A (HARRY R. PEPIATT), 3 November 1992 (03.11.92)  --	1-10
A	DE 3925981 A1 (HOECHST AG), 7 February 1991 (07.02.91)  -- -----	1-10

 Further documents are listed in the continuation of Box C. See patent family annex.

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

13 June 2000

Date of mailing of the international search report

24.07.00

Name and mailing address of the International Searching Authority  
 European Patent Office P.B. 5818 Patentlaan 2  
 NL-2280 HV Rijswijk  
 Tel+31-70/340-2040, Tx 31 651 epo nl.  
 Fax+31-70/340-3016

Authorized officer

 INGER LÖFGREN/E1s  
 Telephon No.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members			International application No.	
			02/12/99 PCT/DK 00/00155	
Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 9813271 A1	02/04/98	AU 4501497 A EP 0934209 A. US 5788378 A	AU 17/04/98 EP 11/08/99 US 04/08/98	
US 5160308 A	03/11/92	US 5033867 A	US 23/07/91	
DE 3925981 A1	07/02/91	NONE		